

# **HIV/AIDS Brief**

## **What are HIV and AIDS?**

Human immunodeficiency virus (HIV) is a disease that attacks the human immune system by destroying white blood cells, thus preventing the body from fighting off infection and disease<sup>1</sup>. HIV can lead to acquired immune deficiency syndrome (AIDS) when either the white blood cell count falls below a certain threshold or when a person with HIV develops certain cancers or infections.

AIDS is the last stage of HIV infection, meaning that an individual's immune system has been weakened to a point where it is difficult to fight infections<sup>2</sup>. Eventually, those with AIDS lose their ability to fight off infections and die from such illnesses.

The HIV virus is found in blood, semen, pre-seminal fluid, vaginal fluid, and breast milk and is transmitted through the spread of these fluids<sup>3</sup>. HIV can be transmitted through oral, anal, or vaginal sex with an infected individual, sharing needles or syringes with an infected person, through exposure before or during birth, or through breast feeding<sup>1</sup>.

In 2006, an estimated 56,000 new cases of HIV infections occurred in the United States and over 1 million people are currently living with the disease<sup>4</sup>. There are sharp disparities among those newly infected with the virus. Of those diagnosed with HIV in 2006, Blacks accounted for 45% of all cases<sup>5</sup>.

## **Risk Factors for HIV/AIDS**

### **Demographic Risk Factors**

- Gender
  - In 2006, males accounted for 73% of all HIV diagnoses<sup>6</sup>.
- Age
  - Those under the age of 40 are more likely to become infected with the HIV virus.
  - More than half (53%) of new HIV cases were those aged 25-44 years of age, in 2006<sup>6</sup>.
- Race/Ethnicity
  - Blacks and Hispanics are at a disproportionate risk of HIV infection.
  - In 2006, Blacks and Hispanic accounted for 45% and 18% of new HIV infections, respectively<sup>6</sup>.

### **Social/Behavioral Risk Factors**

- Risky Sexual Behavior
  - High risk sexual contact (both homosexual and heterosexual), such as unprotected sex, increases the risk of becoming infected with the HIV virus.
  - Men who have sex with men (MSM) accounted for the largest number of HIV diagnoses overall in 2006<sup>6</sup>.

- Among females, most HIV diagnoses occurred in those exposed through high risk heterosexual contact<sup>6</sup>.
- Injection Drug Use/Needle Sharing
  - Sharing needles with an HIV infected person increases the risk of contracting the virus.
  - In 2006, 12% of all new HIV infections were due to injection drug use<sup>4</sup>.
- Perinatal Infection
  - HIV-positive mothers can transmit the virus to their baby before or during birth, or through breast milk exposure after birth<sup>3</sup>.
  - Medication taken during pregnancy can reduce this risk.
- Having a Sexually Transmitted Disease (STD)
  - STDs increase susceptibility to HIV infection<sup>7</sup>.

## Intermediate Outcomes

HIV/AIDS increases the risk of other diseases and is accompanied by complications. Some of these include:

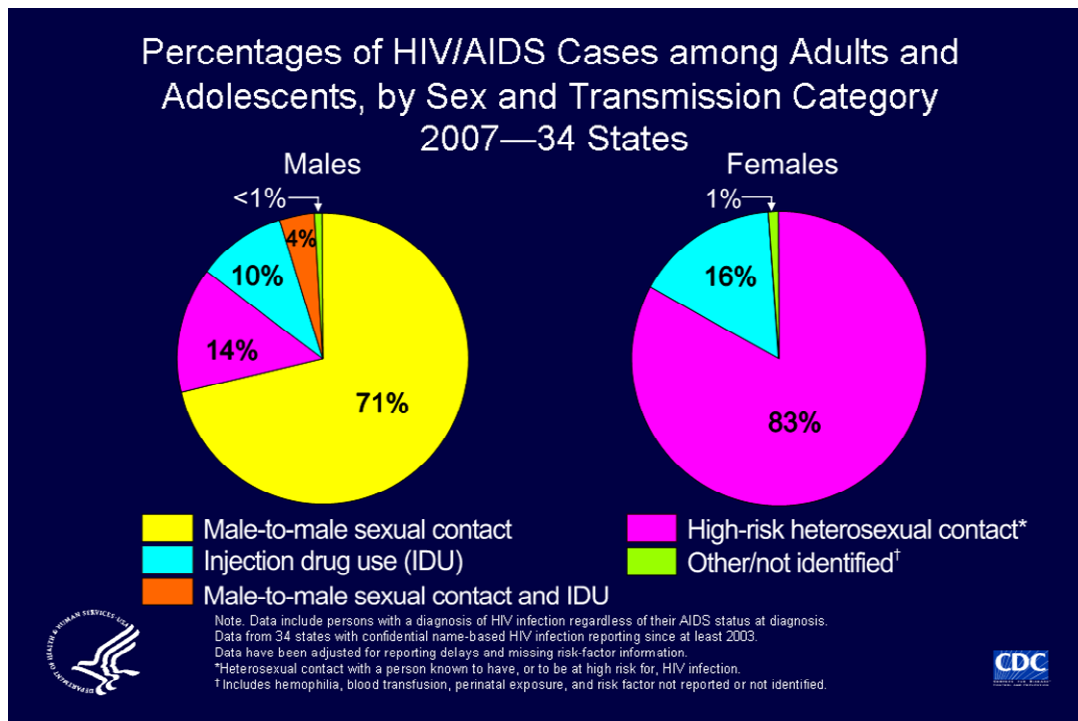
- *Wasting Syndrome*
  - Causes the involuntary loss of more than 10% of a person's body weight and muscle<sup>8</sup>.
  - Can increase the susceptibility to other diseases and infections<sup>8</sup>.
- *Candidiasis (Thrush)*
  - Causes a fungal infection in the mouth, throat, or vagina<sup>9</sup>.
- *Pneumonia*
  - HIV infection increases the risk of pneumonia infection because the immune system is weakened<sup>9</sup>.
- *Tuberculosis (TB)*
  - HIV infection increases the risk of tuberculosis because the immune system is weakened<sup>9</sup>.
- *Invasive Cervical Cancer*
- *Lymphoma*
  - Causes cancer in the lymph nodes and is common in patients with severely depressed immune systems<sup>9</sup>.
- *Cardiovascular Disease*
  - Some HIV medications can increase the risk of developing cardiovascular disease<sup>9</sup>.
- *Diabetes*
  - Some HIV medications increase the risk of developing insulin resistance and diabetes<sup>9</sup>.
- *Dementia*
  - The HIV virus can cross the blood-brain barrier and can damage the brain, affecting an individual's ability to think and function<sup>9</sup>.
- *Oral Health*
  - HIV infection can make a person more susceptible to gum disease, oral warts, cavities, and dry mouth<sup>9</sup>.

- *Hepatitis C*
  - Individuals with HIV, especially injection drug users, may also be infected with the hepatitis C virus.
- 50% to 90% of HIV infected intravenous drug users are also infected with Hepatitis C<sup>12</sup>.
- *Kidney Disease, as a complication*
  - Up to 30% of people living with HIV have abnormal kidney function<sup>9</sup>.
- *Body Fat Changes - Lipodystrophy, as a complication*
  - Lipodystrophy is the disturbance in the way the body produces, distributes, and uses fat<sup>8</sup>.
  - Causes individuals to gain fat in the neck, abdomen, breasts, and face<sup>8</sup>.

## National Statistics and Disparities

### Statistics

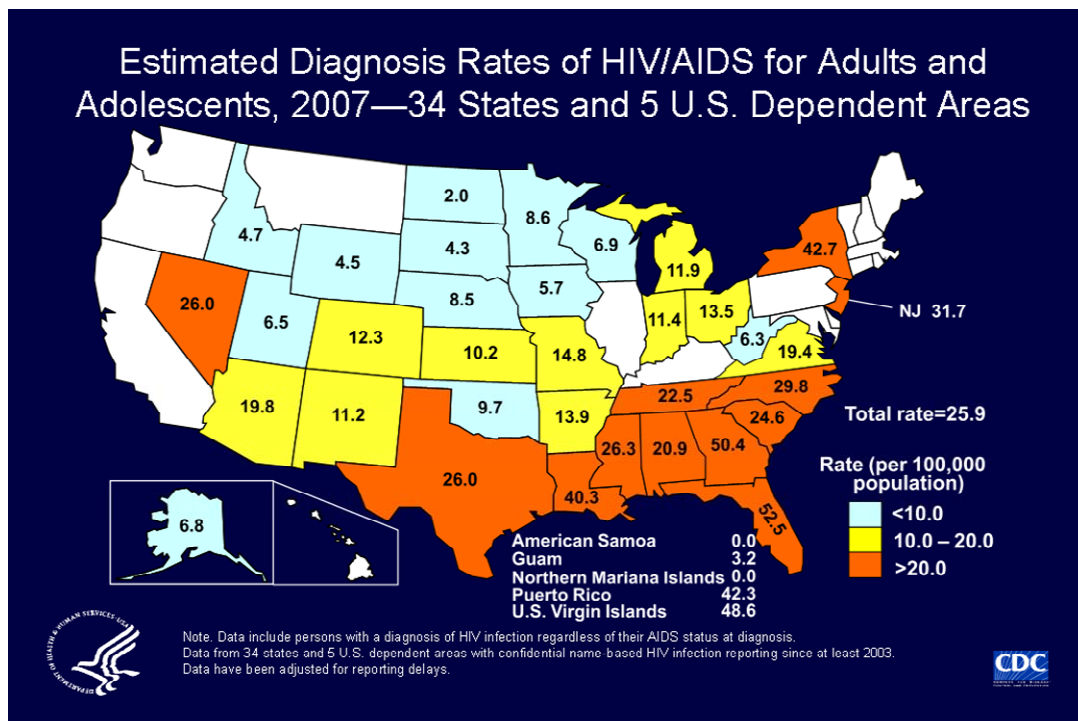
- In 2006, an estimated 1.1 million Americans were living with HIV infection, with 21% undiagnosed<sup>1</sup>.
- Over 56,000 new cases of HIV infections were reported in the United States in 2006<sup>1</sup>.
- In 2007, nearly 37,000 Americans were diagnosed with AIDS<sup>1</sup>.



Source: Centers for Disease Control and Prevention. HIV/AIDS Surveillance - General Epidemiology (through 2007). Last Updated April 9, 2009. Reprinted with permission.

## Disparities

- The number of newly diagnosed HIV infections was 7 times higher in Black Americans than in white Americans<sup>10</sup>.
- The number of newly diagnosed HIV infections was nearly 3 times higher in Hispanic Americans than in white Americans<sup>10</sup>.
- In 2006, men accounted for nearly 3 quarters of all cases of HIV infection<sup>10</sup>.
- The South-Eastern region of the United States had the highest reported diagnosis rates of HIV/AIDS for adults and adolescents in 2007<sup>4</sup>.
- In 2005, 41% of men living with HIV and 65% of women living with HIV were Black<sup>14</sup>.



Source: Centers for Disease Control and Prevention. HIV/AIDS Surveillance - General Epidemiology (through 2007). Last Updated April 9, 2009. Reprinted with permission.

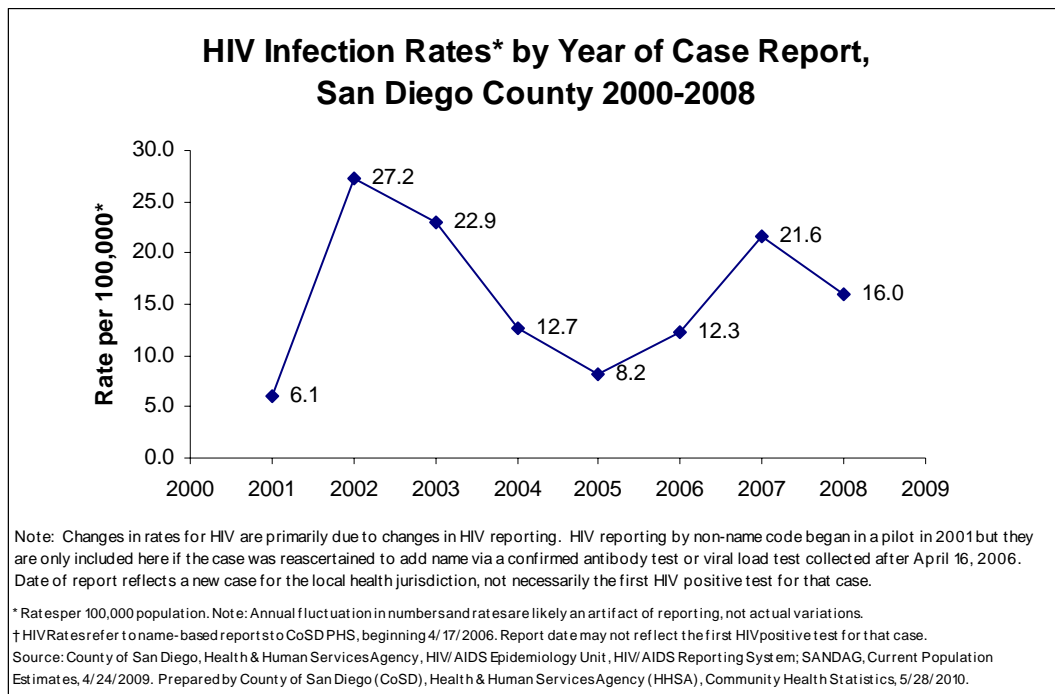
## Costs

- In 2008, the United States federal government spent over \$ 17 billion dollars on HIV/AIDS.
  - This includes direct medical costs, prevention programs, and indirect service programs<sup>11</sup>.

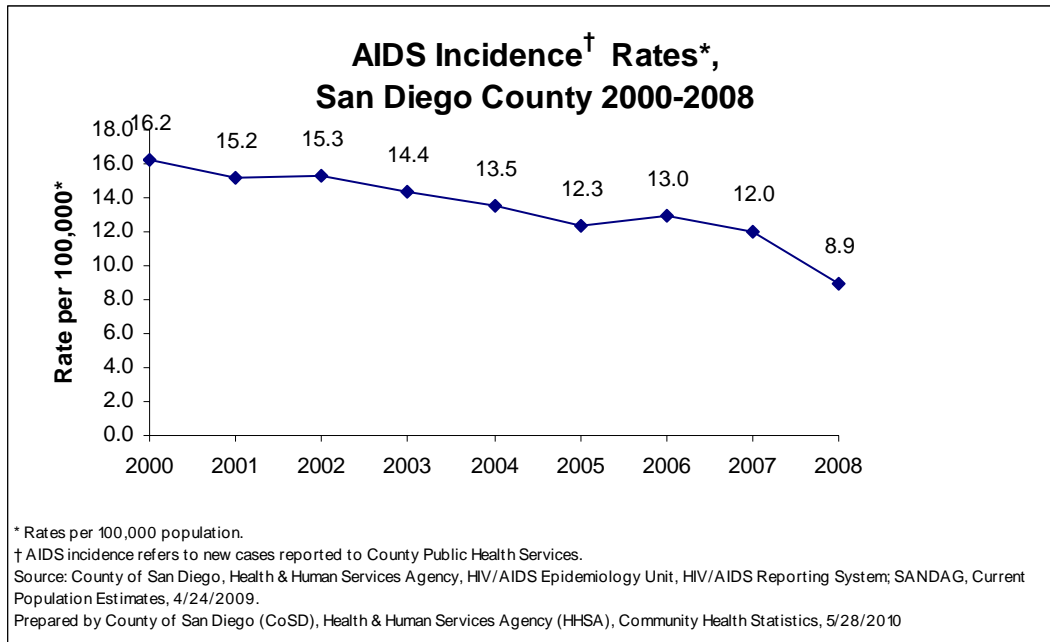
## Local Statistics and Disparities

### Statistics

- Between April 17, 2006 and December 31, 2008, a total of 3,847 new HIV infections were reported in San Diego County<sup>13</sup>.
- In 2008, a total of 391 cases of AIDS were reported in San Diego County<sup>13</sup>.
- Among males, 83% of all new HIV infections reported between April 17, 2006 and December 31, 2008 were transmitted by men who have sex with men (MSM)<sup>13</sup>.
- Among women, 65% of all new HIV infections reported between April 17, 2006 and December 31, 2008 were transmitted through heterosexual contact<sup>13</sup>.



- Between 2001 and 2008, the highest rate of HIV infections occurred in 2002 at 27.2 per 100,000 San Diego County residents.
- Between 2002-2005, new HIV infection rates decreased (from 27.2 per 100,000 residents to 8.2 per 100,000 residents) and then increased from 2005-2007 (from 8.2 per 100,000 residents to 21.6 per 100,000 residents).
- In 2008, the HIV infection rate was 16.0 per 100,000 San Diego County residents.



- From 2000 to 2008, the rate of newly diagnosed AIDS cases has decreased from 16.2 per 100,000 residents to 8.9 per 100,000 residents.

### Disparities

- Of the new HIV infections reported between April 17, 2006 and December 31, 2008, 90% of the cases were males<sup>13</sup>.
- In 2008, the rate of newly diagnosed AIDS cases among Blacks was nearly three times the rate for Whites in San Diego County.
- In 2008, the rate of newly diagnosed AIDS cases among Hispanics was higher than the rate for whites in San Diego County.
- From 2000 to 2008, the Central region had the highest rates of new HIV infections in all of San Diego County.

### HIV/AIDS and Its Complications: Prevention for Individuals

- Safer Sex Practice
  - Use condoms to reduce HIV transmission.
  - When used correctly, condoms can be 98% effective in preventing the transmission of HIV<sup>1</sup>.
- Do not share needles or syringes with others.
- Seek prenatal treatment of you are pregnant.
  - There are medications available that can greatly reduce the chance of transmitting the HIV virus to the baby.
- Seek treatment for STDs
  - Treatment of STDs reduces the risk of transmitting or becoming infected with HIV<sup>7</sup>.
- Get an HIV test

- Early testing and intervention can help prevent the spread and progression of the disease.
- About 21% of those infected do not know they have HIV<sup>1</sup>.

## **Prevention Tools for Public Health Professionals: HIV/AIDS Critical Pathway**

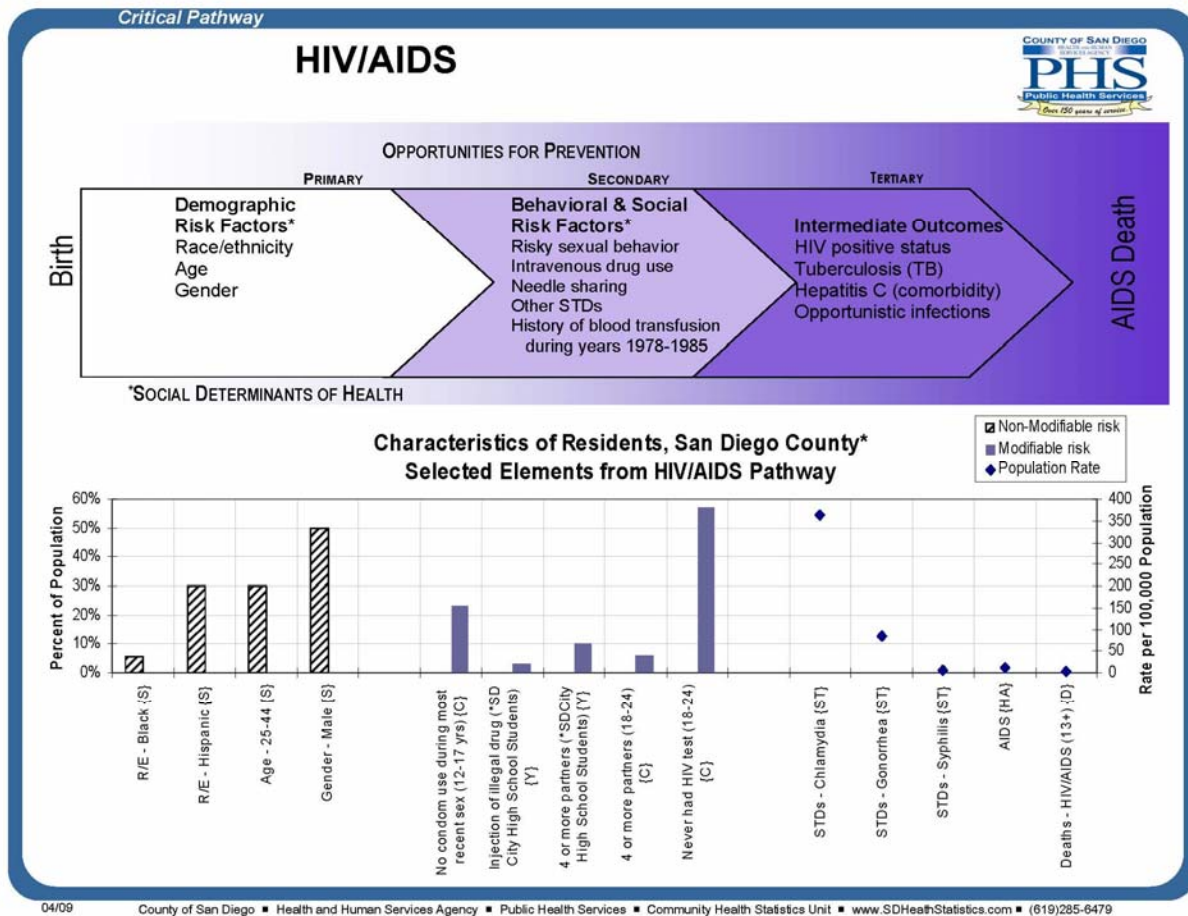
There are many opportunities for public health professionals in the community to help reduce the risk of HIV/AIDS and to improve the health outcomes of individuals who already have the disease. To assist in community health efforts, a *HIV/AIDS Critical Pathway* was developed.

The *HIV/AIDS Critical Pathway* is a tool to be used in health promotion and disease prevention efforts. Its purpose is to identify populations at greater risk for HIV/AIDS, and to identify prevention and early intervention opportunities.<sup>1</sup> The *HIV/AIDS Critical Pathway* displays a diagram of the major risk factors and intermediate outcomes or related diseases that have an impact on, or result from, HIV/AIDS. Risk factors are marked as non-modifiable (black striped bars) such as race/ethnicity or gender and modifiable (solid colored bars) such as risky sexual behavior or needle sharing.

Beneath the risk factors diagram is a data grid describing the San Diego resident population in relation to selected elements of the pathway. The HIV/AIDS data grid is designed to assist in quick identification of opportunities for interventions that might have a high impact on a particular disease. The data represent all San Diegans, not only those with a particular disease. The left axis (bar) indicates the percent of the population with a known risk factor or intermediate outcome. The right axis (diamond) indicates the rate of a particular medical encounter within the population that is specified.

The data grids also display the patterns and rates of medical encounter for Emergency Department Discharge, Hospital Discharge, and Death, and are described fully elsewhere.<sup>1</sup> In addition, the Community Health Statistics Unit ([www.SDHealthStatistics.com](http://www.SDHealthStatistics.com)) provides detailed demographic, health and facility data including maps of geographically formatted health data. Also available are links to other County data sources, state and national sites of interest. For further assistance with data or interpretation, please contact the Community Health Statistics Unit.

## HIV/AIDS Critical Pathway to Disease.



<sup>1</sup> Centers for Disease Control and Prevention. Basic Information about HIV and AIDS.

<http://cdc.gov/hiv/topics/basic/index.htm#spread>. Last updated March 22, 2010. Accessed May 25, 2010.

<sup>2</sup> U.S. Department of Health and Human Services. What is HIV/AIDS? <http://www.aids.gov/hiv-aids-basics/hiv-aids-101/overview/what-is-hiv-aids>. Accessed May 25, 2010.

<sup>3</sup> U.S. Department of Health and Human Services. Reduce Your Risk: Fluids of Transmission. <http://www.aids.gov/hiv-aids-basics/prevention/reduce-your-risk/fluids-of-transmission>. Accessed May 25, 2010.

<sup>4</sup> Centers for Disease Control and Prevention. HIV Incidence: Statistics and Surveillance.

<http://www.cdc.gov/hiv/topics/surveillance/incidence.htm>. Last updated September 11, 2008. Accessed May 25, 2010.



- <sup>5</sup> Centers for Disease Control and Prevention. State of the HIV/AIDS Epidemic, HIV Incidence in the United States. <http://cdc.gov/hiv/surveillance/incidence/sote/fullscreen.htm>. Last Updated September 22, 2009. Accessed May 25, 2010.
- <sup>6</sup> U.S. Department of Health and Human Services. Statistics: Statistics Overview. <http://www.aids.gov/hiv-aids-basics/hiv-aids-101/overview/statistics>. Accessed May 25, 2010.
- <sup>7</sup> Centers for Disease Control and Prevention. The Role in STD Detection and Treatment in HIV Prevention –CDC Fact Sheet. <http://www.cdc.gov/std/hiv/STDFact-STD&HIV.htm#WhatIs>. Last updated April 10, 2008. Accessed May 26, 2010.
- <sup>8</sup> Klemack, Christina. "NCPAD: Disability/Condition: Benefits of Exercise for People with HIV/AIDS." The National Center on Physical Activity and Disability Home Page. [http://www.ncpad.org/disability/fact\\_sheet.php?sheet=190](http://www.ncpad.org/disability/fact_sheet.php?sheet=190). Last updated March 7, 2007. Accessed May 26, 2010.
- <sup>9</sup> U.S. Department of Health and Human Services. HIV/AIDS Basics: Opportunistic Infection. <http://aids.gov/hiv-aids-basics/staying-healthy-with-hiv-aids/potential-related-health-problems/opportunistic-infections>. Accessed May 26, 2010.
- <sup>10</sup> Centers for Disease Control and Prevention. New Estimates of U.S. HIV Prevalence, 2006. <http://www.cdc.gov/hiv/topics/surveillance/resources/factsheets/prevalence.htm>. Last updated October 7, 2008. Accessed May 26, 2010.
- <sup>11</sup> U.S. Department of Health and Human Services. Federal Resources: Federal Opportunities, How We're Spending. <http://www.aids.gov/federal-resources/funding-opportunities/how-were-spending>. Accessed May 26, 2010.
- <sup>12</sup> Centers for Disease Control and Prevention. Coinfection with HIV and Hepatitis C Virus. <http://www.cdc.gov/hiv/resources/factsheets/coinfection.htm>. Last updated March 8, 2007. Accessed May 26, 2010.
- <sup>13</sup> County of San Diego, Health and Human Services Agency. HIV/AIDS Epidemiology Report, 2009. [http://www.sdcountry.ca.gov/hhsa/programs/phs/documents/HAEU\\_AnnualReport2009.pdf](http://www.sdcountry.ca.gov/hhsa/programs/phs/documents/HAEU_AnnualReport2009.pdf). Accessed May 26, 2010.
- <sup>14</sup> Centers for Disease Control and Prevention. HIV/AIDS and African Americans. <http://www.cdc.gov/hiv/topics/aa/index.htm>. Last updated June 28, 2007. Accessed May 28, 2010.
- <sup>15</sup> County of San Diego Health and Human Services Agency, Public Health Services. Community Health Statistics Unit. (2009). Critical Pathways: the Disease Continuum, HIV/AIDS. April, 2009. [http://www.sdcountry.ca.gov/hhsa/programs/phs/community\\_health\\_statistics/](http://www.sdcountry.ca.gov/hhsa/programs/phs/community_health_statistics/). Accessed May 28, 2010.
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